

**Recommendation to the Industrial Compliance Unit:**

**The San Diego Region Should Encourage the  
State Board to Grant an Ocean Plan Exception to the  
Scripps Institution of Oceanography for Discharges to  
Areas of Special Biological Significance<sup>1</sup>**

April 1, 2004

**Recommendation**

1. The San Diego Regional Water Quality Control Board should recommend the State Water Resources Control Board issue an Exception to the 2001 California Ocean Plan for the Scripps Institution of Oceanography to allow discharges to Areas of Special Biological Significance (ASBS).
  - a. The Regional Board, in the reissuance of the NPDES Permit, due for adoption on November 10, 2004, should ensure that the University NPDES Permit and storm water plans contain receiving water monitoring to confirm that the Ocean Plan Exception is justified and to encourage the University to participate periodically in the long-term regional ambient monitoring program for the Southern California Bight.
  - b. The Regional Board should ensure that the University implements operational best management practices and designs and installs appropriate structures to prevent accidental releases of non-indigenous species.
  - c. The Regional Board should ensure that the University implements practices that reduce the amounts of antibiotics and chemicals discharged to the ocean.

**Summary**

The Scripps Institution of Oceanography at the University of California San Diego has provided information in support of an Exception to the 2001 California Ocean Plan to allow waste discharges from flows associated with storm runoff and aquarium flow-through seawater systems to be discharged to Areas of Special Biological Significance (ASBS). Flows from the Birch Aquarium and research aquaria contain waste materials contributed by feed, waste from the organisms themselves, and chemicals and antibiotics. Ocean receiving waters in the vicinity of the discharges are heavily protected from collection of marine plants and animals by the public and are preserved for the enjoyment of the public and for scientific research. The marine resource information provided by Scripps appears complete and is consistent with San Diego

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<sup>1</sup> By Pete Michael of the Marine Waters Unit.

Regional Board observations. The Regional Board should agree that subject to conditions stated in the State Board's draft Staff Report, the issuance of the Exception will preserve the beneficial uses of ocean waters in the ASBS and that the Exception is in the interest of the people of California.

### Discussion

The Exception, if approved by the State Board, would result in new knowledge about waste treatment at a major ocean research and public education facility. The San Diego Regional Board must provide oversight and vigilance to assure that the measures Scripps intends to implement are carried through effectively and consistently. A probable overall result of approval of the Exception is that the University of California San Diego would establish, through adoption of a reissued NPDES Permit, best management practices for control of the use of antibiotics and chemicals and for the prevention of accidental releases of non-indigenous plants and animals to the ocean. The University's management programs may become models for other aquarium dischargers to ASBS and to other marine environments without ASBS designations.

The San Diego Regional Board has been active in recent years in seeking prevention of releases of non-indigenous species, specifically the accidental introduction of unicellular colonies of the green alga, *Caulerpa taxifolia*<sup>2</sup>. Hundreds of colonies of these plants have been detected in two southern California coastal lagoons after being discharged in aquarium waste. More than three million dollars of public funds and industry contributions have so far been spent to detect and eradicate *Caulerpa* since its detection in the San Diego and Santa Ana Regions in 2000. The appearance of *Caulerpa* in Agua Hedionda Lagoon in San Diego County and in Huntington Harbour in Orange County has required years of efforts by divers and has resulted in losses of recreational beneficial uses related to boating and fishing. A concern of the San Diego Regional Board is that if *Caulerpa* is not fully eradicated and marine resources are lost, that a federal agency could permanently close Aqua Hedionda Lagoon to water skiing and fishing and eliminate access by the five-unit Encina steam electric power plant that receives its cooling water from the Lagoon. In that case the power plant could be faced with the dilemma either of closing or of being required to obtain an expensive alternate source of cooling water.

A massive example of the effects of this non-indigenous alga on beneficial uses has been demonstrated in the Mediterranean Sea. A possible single discharge in 1984 from the Monaco Aquarium to the Mediterranean of a cool-water tolerant form of *Caulerpa*, possibly a mutant of a tropical form, has resulted in the loss of hundreds of square miles of native seaweed habitat in the Mediterranean and closure of diving sites, fishing grounds, and recreational boat anchorages. Monetary losses to commercial and recreational interests have been in the hundreds of millions of dollars in the Mediterranean. Many marine habitats on the four continents where the cool-water non-indigenous form of *Caulerpa* has become established, could realize similar fates.

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<sup>2</sup> <http://www.swrcb.ca.gov/rwqcb9/>. Click on programs, seaweed eradication.

As the University of California follows through on its commitment to implement best management practices to control accidental releases of living materials and chemicals from Scripps aquaria, the University can evaluate the effectiveness of its practices and require its other marine research labs to provide similar protection to the Pacific Ocean. Based on the experiences of the University with other programs, such as the Scripps' scientific diving safety program, these high-quality programs often become models for academic, government, and private organizations. Should Scripps be successful in controlling releases of chemicals and non-indigenous species, the Scripps program could become standardized throughout California and the United States. Issuance of the Exception to Scripps could therefore result in benefits to the people of California and to the University beyond the economic benefit of allowing continued operation of seawater flow-through systems. In the long term, approval of the Exception to Scripps could result in better protection of beneficial uses than if no Exception were granted.

An implied obligation if the State Board were to issue the Exception is that the University would desire to document compliance through receiving water monitoring. However, because compliance monitoring may not use a randomized sampling or probabilistic approach, it could be difficult to assess the overall state of water quality and condition of marine beneficial uses with a high degree of confidence. For this reason it may be appropriate for the University also to participate actively in regional ambient monitoring projects, such as that of the Regional Marine Monitoring Program for the Southern California Bight sponsored by the Southern California Coastal Water Research Project (SCCWRP)<sup>3</sup>. This program was launched by SCCWRP in response to recommendations by the National Research Council (NRC) of the National Academy of Sciences. NRC noted that 95 percent of the ocean in the Bight was not addressed by compliance monitoring programs and that the condition of beneficial uses could not be measured. To date, three "do it yourself" periodic long-term sampling efforts under this regional program have occurred: the 1994 Pilot Program, Bight'98, and Bight'03. Sixty-two organizations participated in Bight'98, including the State Board and the three southern California coastal regional boards. The San Diego Regional Board should consider encouraging the University to participate periodically in this regional marine monitoring program to determine the status and trends of water quality and protection of beneficial uses. The next regional monitoring effort is expected to occur in 2008. Marine monitoring field and lab protocols are available at the SCCWRP website and are being developed and approved by the California Surface Water Ambient Monitoring Program (SWAMP)<sup>4</sup> at the State Board Division of Water Quality. To assure compatibility with other marine monitoring efforts, SWAMP sampling and analysis protocols should be followed.

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<sup>3</sup> <http://www.sccwrp.org>. Click on regional monitoring.

<sup>4</sup> <http://www.swrcb.ca.gov/quality.html>.